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ON VERTICAL PROFILE OF OZONE AT SYOWA STATION, ANTARCTICA, 1966–1988 (ABSTRACT)

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The changes in vertical ozone profiles and temperature at Syowa Station (69°S, 40°E) are shown to explain the mechanism of Antarctic ozone change.

The differences in the monthly mean ozone vertical profiles between 1966–1981 and 1982–1988 at Syowa and those at the South Pole are discussed. The results show that severe ozone decrease occurs around October and November in the layer between 100-mb and 70-mb. Statistically significant ozone increase is found in January in the layer from 20-mb to 17.5-mb at Syowa. Similar increase in ozone is also seen in the layer around 20-mb at the South Pole in December, though it is not statistically significant.

The vertically integrated changes of ozone partial pressure with ozonesonde associated with 100-mb temperature changes are shown together with the change of total ozone calculated from Dobson ozone observations and routine radiosonde observations for the periods of 1961–1981 and 1982–1988. Calculated ozone changes with 100-mb temperature changes agree well with the changes in total ozone by the Dobson spectrophotometer in the period 1982–1988.

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